

METHOD AND APPARATUS FOR PERFORMING HIGH-DENSITY
DTMF, MF-R1, MF-R2 DETECTION

ABSTRACT OF THE DISCLOSURE

Detectors determine the presence of valid sinusoids for DTMF, MF-R1 and MF-
5 R2 protocols for encoding dialed digits. The detectors split electrical signals into
subbands. Energies within the subbands are analyzed to determine a presence of
sinusoids corresponding to frequencies of dialed digits. In one embodiment, the
detectors comprise a PS-IIR filter to split the electrical signal into the subbands. The
detectors further comprise at least one bank of filters, such as notch filters,
10 corresponding to the number of possible relevant frequencies within the respective
subbands. The detectors further comprise detection logic comprising tests, which may
include analyzing the output(s) from the bank of filters. Optionally, a preclassifier is
employed to predetermine which filters in the banks of filters are to be executed. The
detectors, typically deployed in digital signal processors, allow for an increase in the
15 density of detectors and provide robust performance in *talk-off* situations.